UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* MOTOKI KAKUI,
TOSHIYUKI MIYAMOTO and
MASAHIRO TAKAGI

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Appeal 2007-2929
Application 10/615,389
Technology Center 3600

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Decided: November 2, 2007

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Before WILLIAM F. PATE, III, TERRY J. OWENS, and
JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

## DECISION ON APPEAL

The Appellants appeal from a rejection of claims 2-12, 28-34, 39, 41 and 45-79. Claim 1 has been canceled and claims 13-27, 35-38, 40 and 42-44 stand withdrawn from consideration by the Examiner.

## THE INVENTION

The Appellants claim an optical amplification module for collectively amplifying signal light. Claim 3 is illustrative:

> 3. An optical amplification module for collectively amplifying signal light having multiplexed a plurality of channels in a single wavelength band including a wavelength region having a wavelength of 1610 nm or longer, said optical amplification module comprising:
>
> a Bi oxide based optical waveguide, comprised of Bi oxide based host glass, including an optical waveguide region doped with Er element, for propagating the signal light;
>
> a pumping light supply system for supplying the optical waveguide region with pumping light so as to generate a population inversion within the optical waveguide region of said Bi oxide based optical waveguide; and
>
> a control unit for adjusting an optical power of the pumping light supplied from said pumping light supply system to said Bi oxide based optical waveguide so as to yield a relative gain non-uniformity of less than 25% in a net gain spectrum of said Bi oxide based optical waveguide at a predetermined operating temperature within an operating temperature range of said optical amplification module.

## THE REJECTIONS

The claims stand rejected as follows: claims 2-12, 28-34, 39, 41 and 45-79 under 35 U.S.C. § 112, first paragraph, enablement requirement, and claims 39 and 41 under 35 U.S.C. § 112, fourth paragraph, as being dependent from a canceled claim.

## OPINION

We reverse the rejection under 35 U.S.C. § 112, first paragraph, affirm the rejection under 35 U.S.C. § 112, fourth paragraph, and enter a statement under 37 C.F.R. § 41.50(c).

Rejection under 35 U.S.C. § 112, first paragraph

The Appellants' independent claims each claim an optical amplification module for collectively amplifying signal light. The Appellants' Specification does not define "signal light". However, the Appellants' Specification states, in the Related Background Art section, that "further increasing the amount of information which can be transmitted/received, using not only multiplexed signal light included in C band (1530 nm to 1565 nm) but also that included in L band (1565 nm to 1625 nm) has been under study" (Spec. 1:16-20). Thus, the Appellants' Specification indicates that by "signal light" the Appellants mean light in the 1530-1625 nm wavelength range.

The Examiner argues that the term "signal light" in the Appellants' claim limitation "for collectively amplifying signal light having multiplexed a plurality of channels in a single wavelength band including a wavelength region having a wavelength of 1610 nm or longer", which appears in the preamble of each of the Appellants' independent claims, includes infrared, microwave and radio radiation and radiation having a mathematically undefined frequency of zero (Ans. 3). That argument is not well taken because the Examiner has not established that infrared, microwave or radio radiation or radiation having a mathematically undefined frequency is "signal light" as that term would be most broadly construed in view of the Appellants' Specification. *See In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d

1320, 1322 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983).

The Examiner argues that the Appellants' disclosure is not enabling for the recited gain non-uniformities of "less than 25%" (claims 1, 5 and 7) and "less than 19%" (claims 4, 6 and 9) because those ranges encompass a gain non-uniformity of zero (Ans. 4-5). That argument is not convincing because the Examiner has not established that either 1) one of ordinary skill in the art could not, through no more than routine experimentation, have obtained with the Appellants' claimed optical amplification module a zero gain non-uniformity, *see In re Wright*, 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993), or 2) if a gain non-uniformity of zero is unachievable, one of ordinary skill in the art would have considered the broadest reasonable interpretation of the Appellants' claims in view of the Appellants' Specification to encompass an unachievable gain non-uniformity.[1]

The Examiner argues, regarding claims 8 and 10, that the frequency about which "wavelength bandwidth exceeds 50 nm" is centered can be zero or infinity, both of which are mathematically undefined (Ans. 4). That argument is not persuasive because the Examiner has not established that the Appellants' term "signal light", given its broadest reasonable interpretation in light of the Appellants' Specification, encompasses radiation having a mathematically undefined frequency.

For the above reasons we reverse the Examiner's rejection under

[1] The Examiner's question "What is the scope of the claims?" (Ans. 9) pertains to claim clarity under 35 U.S.C. § 112, second paragraph, not enablement under 35 U.S.C. § 112, first paragraph.

35 U.S.C. § 112, first paragraph, enablement requirement.

Rejection under 35 U.S.C. § 112, fourth paragraph

The Examiner rejects claims 39 and 41 because they depend from canceled claim 1 (Ans. 3). The Appellants do not contest that rejection but, rather, request a statement under 37 C.F.R. § 41.50(c) that the rejection can be overcome by amending claim 39 to depend from claim 3 (Br. 6). Accordingly, we summarily affirm the rejection under 35 U.S.C. § 112, fourth paragraph.

Statement under 37 C.F.R. § 41.50(c)

The Appellants may overcome the rejection under 35 U.S.C. § 112, fourth paragraph, as to both claims 39 and 41 by amending claim 39 to depend from claim 3.

DECISION

The rejection of claims 2-12, 28-34, 39, 41 and 45-79 under 35 U.S.C. § 112, first paragraph, enablement requirement, is reversed. The rejection of claims 39 and 41 under 35 U.S.C. § 112, fourth paragraph, as being dependent from a canceled claim, is affirmed. A statement under 37 C.F.R. § 41.50(c) has been entered.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART, 37 C.F.R. § 41.50(c)

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